AMENDMENT

LISTING OF CLAIMS:

The following listing supplants all prior listings of the claims.

1. to 20. (Canceled)

21. (Previously Presented) A process for producing nano-sized stabilized zirconium dioxide that comprises:

a. providing an aqueous solution that includes a zirconium salt and a stabilizing agent;

b. hydrolyzing the solution to form an intermediate and hydrochloric acid and to remove water, wherein the hydrolyzing is conducted in a controlled temperature, substantially total evaporation process at a temperature higher than the boiling point of the solution but lower than the temperature where there is significant crystal growth; and,

c. calcining the intermediate to form nano-sized agglomerates.

22. (Previously Presented) A process for producing nano-sized stabilized zirconium dioxide that comprises:

a. providing an aqueous solution that includes a zirconium salt and a stabilizing agent;

b. hydrolyzing the solution to form an intermediate, wherein the hydrolyzing is conducted in a controlled temperature, substantially total evaporation process at a temperature higher than the boiling point of the solution but lower than the temperature where there is significant crystal growth, and wherein the intermediate comprises amorphous zirconia that is comprised of spheres or parts of spheres with thin membranes having a diameter between about 1 and about 100 μm and a membrane thickness between about 30 nm and about 1000 nm; and,

c. calcining the intermediate to form nano-sized agglomerates.

23. to 26. (Canceled)

27. (New) The process of claim 21 wherein the zirconium salt is zirconium oxychloride.

28. (New) The process of claim 21 wherein the stabilizing agent is selected from the group consisting of yttrium chloride, cerium chloride, calcium chloride, magnesium chloride, and mixtures thereof.

29. (New) The process of claim 21 wherein the hydrolyzing is effected in a spray dryer.

30. (New) The process of claim 29 wherein the spray dryer temperature is between about 120° C and about 350° C.

31. (New) The process of claim 21 wherein the intermediate comprises a thin film of amorphous zirconia.

32. (New) The process of claim 31 wherein the amorphous zirconia comprises spheres or parts of spheres with thin membranes having a diameter between about 1 and about 100 μm and a membrane thickness between about 30 nm and about 1000 nm.

33. (New) The process of claim 21 wherein the calcining is conducted at a temperature between about 400° C and about 1300° C.

34. (New) The process of claim 22 wherein the zirconium salt is selected from the group consisting of zirconium oxysulfate, zirconium oxychloride, zirconium nitrate, and a water-soluble stabilizing agent.

35. (New) The process of claim 22 wherein the stabilizing agent is selected from the group consisting of yttrium chloride, cerium chloride, calcium chloride, magnesium chloride, and rare earth oxides.

36. (New) The process of claim 22 wherein the hydrolyzing is effected in a spray dryer.

37. (New) The process of claim 36 wherein the spray dryer temperature is between about 120° C and about 350° C.

38. (New) The process of claim 22 wherein the calcining is conducted at a temperature between about 400° C and about 1300° C.